What Is Claimed Is:

1. An electrical component, in particular a high-frequency microelectronic or microelectromechanical component, comprising a base element (10) that is provided with at least one feedthrough (13) that connects, continuously at least for high-frequency electromagnetic waves, a first conductive structure (11), extending on or in a vicinity of an upper side (21) of the base element (10), to a second conductive structure (12) extending on or in a vicinity of a lower side (20) of the base element (10), the feedthrough (13) being embodied in the form of a right prism or a right cylinder,
wherein the first and/or the second conductive structure (11, 12) is embodied as a planar waveguide, in particular as a coplanar waveguide.

2. The electrical component as recited in Claim 1,
wherein the feedthrough (13) is filled or lined with an electrically conductive material, in particular a metal.

3. The electrical component as recited in Claim 1 or 2,
wherein the base element (10) is flat at least in a vicinity of the feedthrough (13); and the feedthrough (13) extends perpendicular to the plane spanned by that flat vicinity and penetrates through the base element (10).

4. The electrical component as recited in one of the preceding claims,
wherein the feedthrough (13) is a feedthrough (13) etched into the base element (10) using a plasma etching method and then filled or lined with an electrically conductive material.

5. The electrical component as recited in one the preceding claims,
wherein the feedthrough (13) is round, oval, square, or rectangular in plan view.

6. The electrical component as recited in one the preceding claims,
wherein the feedthrough (13) occupies in plan view an area of 400 μm^2 to 40,000 μm^2, in particular 1,600 μm^2 to 10,000 μm^2, and/or has a diameter of 20 μm to 200 μm, in particular 40 μm to 100 μm.

7. The electrical component as recited in one the preceding claims, wherein the base element (10) has, in the region of the feedthrough (13), a thickness of 100 μm to 650 μm.

8. The electrical component as recited in one the preceding claims, wherein the base element (10) is a high-resistance silicon disk, in particular having a specific electrical resistance of more than 1000 Ω/cm

9. The electrical component as recited in one the preceding claims, wherein the upper conductive structure (11) or the lower conductive structure (12) is separated from the feedthrough (13) by a dielectric (15), in particular a patterned dielectric layer.

10. The electrical component as recited in Claim 9, wherein the dielectric (15) constitutes, with the conductive structures (11, 12) and the feedthrough (13), a capacitor having a capacitance of 0.05 pF to 4 pF, in particular 0.1 pF to 2 pF; and/or the dielectric (15) is a silicon oxide layer having a thickness of 45 nm to 1800 nm, in particular 90 nm to 900 nm.

11. The electrical component as recited in one the preceding claims, wherein the upper conductive structure (11) is embodied as an upper coplanar waveguide having a first upper ground lead (11'), an upper signal lead (11"), and a second upper ground lead (11') which extend at least locally parallel to one another; the lower conductive structure (12) is embodied as an upper coplanar waveguide having a first lower ground lead (12'), a lower signal lead (12"), and a second lower ground lead (12') which extend at least locally parallel to one another; the first ground lead (11') of the upper conductive structure (11) is connected to the first ground lead (12') of the lower conductive structure (12) by way of a first feedthrough (13), the second ground lead (11') of the upper conductive structure (11) to the second ground lead (12') of the lower conductive structure (12) by way of a second feedthrough (13), and the signal lead (11") of the upper conductive structure (11) to the signal lead (12") of the lower conductive structure (11) by way of a third feedthrough (13); and the third feedthrough (13') is offset with respect to the first feedthrough (13) and the second feedthrough (13).

12. The electrical component as recited in Claim 11,
wherein in plan view, the offset (v) of the third feedthrough (13') on base element (10) is 50 μm to 300 μm, in particular 150 μm.

13. The electrical component as recited in one the preceding claims,
wherein the first or the second conductive structure (11, 12) locally has a capacitative component, in particular an interdigital capacitor, for further HF compensation.

14. The electrical component as recited in one the preceding claims,
wherein the upper side (21) of the base element (10) is provided with an electrical component (17) or sensor element, in particular a high-frequency microelectronic or microelectromechanical component such as a high-frequency diode or a high-frequency transistor, a micromechanically fabricated short-circuit switch for high-frequency electromagnetic waves, or a micromechanically fabricated sensor element, that can be electrically activated by way of the feedthrough (13), in particular by way of at least two such feedthroughs (13), from the lower side (20) of the base element (10).

15. The electrical component as recited in one the preceding claims,
wherein the electrical component (17) is provided, on the upper side of the base element (10), with a hermetically sealed capsule (16).

16. A method for producing an electrical component (5) comprising a feedthrough (13) for high-frequency electromagnetic waves through a base element (10), as recited in one the preceding claims, an electrically conductive layer being applied at least locally on an upper side (21) of the base element (10) and an etching mask being applied on a lower side (20) of the base element (10); at least one trench (14), having at least almost perpendicular sidewalls and penetrating through the base element (10), being etched into the base element (10) by the etching mask in a plasma etching step; an electrically conductive layer being applied at least locally on the lower side (20) after the etching and after removal of the etching mask; and the trench (14) being at least largely filled or lined with an electrically conductive material, in particular by electroplating deposition.

17. The method as recited in Claim 16,
wherein the electrically conductive layer on the upper side (21) and/or on the lower side (20) is produced by deposition or sputtering of a metal, in particular a metal suitable for subsequent electroplating reinforcement, and is patterned in accordance with a conductive structure (11, 12) to be produced on the upper side (21) and/or the lower side (20).

18. The method as recited in Claim 17,
wherein a photoresist that is photolithographically patterned is applied as the etching mask.

19. The method as recited in Claim 16,
wherein after the trench (14) is etched in, photoresist masks are applied on both sides of the base element (10), and metal conductive structures (11, 12), in particular in the form of planar waveguides, are deposited by electroplating on the upper side (21) and the lower side (20) together with the electrically conductive material that fills or lines the trench (14).

20. The method as recited in one of Claims 16 through 19,
wherein a dielectric layer (15), adapted in plan view to the area of the feedthrough (13) to be produced or slightly larger, is locally deposited on the upper side (21) of the base element (10) prior to deposition there of the electrically conductive layer.

21. The use of the electrical component as recited in one of Claims 1 through 15 to create low-loss high-frequency crossovers.